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Sequence Listing

<110> Biogen Idec Inc.
McLachlan, Karen
Gately, Dennis

<120> NOVEL GENE TARGETS AND LIGANDS THAT BIND THERETO FOR TREATMENT AND
DIAGNOSIS OF COLON CARCINOMAS

<130> 037003-0302886

<140> PCT/US03/09534

<141> 2003-03-28

<150> US 60/367,727

<151> 2002-03-28

<150> US 60/381,328

<151> 2002-05-20

<150> US 60/386,747

<151> 2002-06-10

<150> US 60/427,564

<151> 2002-11-20

<160> 67

<170> PatentIn version 3.1

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His Ile Glu Glu Val Ala Tyr Asn Ala Leu Ser Phe Val Trp Asn Val
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Asn Glu Glu Ala Lys Val Phe Ile Gly Val Asn Cys Leu Ser Thr Asp
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Phe Ser Ser Gln Lys Gly Val Lys Gly Val Pro Leu Asn Leu Gln Ile
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Asp Thr Tyr Asp Cys Gly Leu Gly Thr Glu Arg Leu Val His Arg Ala
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Val Cys Gln Ile Lys Ile Phe Cys Asp Lys Gly Ala Glu Arg Lys Met
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 180 185 190

Gly Ala Ala Pro Ser Ala Gly Pro Ser Ser Ser Asn Arg Leu Pro Leu
 195 200 205

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 210 215 220

Lys Gln Ala Lys Glu Gly Asp Leu Gln Arg Val Leu Leu Tyr Val Arg
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Arg Glu Thr Glu Glu Val Phe Asp Ala Leu Met Leu Lys Thr Pro Asp
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Glu Asn Ile Tyr Lys Val Tyr Lys Lys Cys Lys Arg Gly Ile Leu Val
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Asn Met Asp Asn Asn Ile Ile Gln His Tyr Ser Asn His Val Ala Phe
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Pro Val Leu Phe Ile Pro Asn Val His Phe Ser Ser Leu Gln Arg Ser
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Gly Gly Ala Ala Pro Ser Ala Gly Pro Ser Ser Ser Asn Arg Leu Pro
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Leu Lys Arg Thr Cys Ser Pro Phe Thr Glu Glu Phe Glu Pro Leu Pro
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Ser Lys Gln Ala Lys Glu Gly Asp Leu Gln Arg Val Leu Leu Tyr Val
100 105 110

Arg Arg Glu Thr Glu Glu Val Phe Asp Ala Leu Met Leu Lys Thr Pro
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Asp Leu Lys Gly Leu Arg Asn Ala Ile Ser Glu Lys Tyr Gly Phe Pro
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Glu Glu Asn Ile Tyr Lys Val Tyr Lys Lys Cys Lys Arg Gly Ile Leu
145 150 155 160

Val Asn Met Asp Asn Asn Ile Ile Gln His Tyr Ser Asn His Val Ala
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Lys Glu Leu
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Met Leu Phe Pro Asp Ile Leu Lys Thr Ser Pro Glu Pro Pro Cys Pro
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Glu Asp Tyr Pro Ser Leu Lys Ser Asp Phe Glu Tyr Thr Leu Gly Ser
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Pro Lys Ala Ile His Ile Lys Ser Gly Glu Ser Pro Met Ala Tyr Leu
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Asn Lys Gly Gln Phe Tyr Pro Val Thr Leu Arg Thr Pro Ala Gly Gly
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Lys Gly Leu Ala Leu Ser Ser Asn Lys Val Lys Ser Val Val Met Val
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Val Phe Asp Asn Glu Lys Val Pro Val Glu Gln Leu Arg Phe Trp Lys
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His Trp His Ser Arg Gln Pro Thr Ala Lys Gln Arg Val Ile Asp Val
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Ala Asp Cys Lys Glu Asn Phe Asn Thr Val Glu His Ile Glu Glu Val
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195 200 205

Val Phe Ile Gly Val Asn Cys Leu Ser Thr Asp Phe Ser Ser Gln Lys
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Gly Val Lys Gly Val Pro Leu Asn Leu Gln Ile Asp Thr Tyr Asp Cys
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Tyr Val Arg Arg Glu Thr Glu Glu Val Phe Asp Ala Leu Met Leu Lys
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Phe Pro Glu Glu Asn Ile Tyr Lys Val Tyr Lys Lys Cys Lys Arg Gly
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Ile Leu Val Asn Met Asp Asn Asn Ile Ile Gln His Tyr Ser Asn His
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U.S. Application No. - Unassigned
 Atty. Docket No. 037003-0312028

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Leu Ser Ser Ser Thr Gly Gly Arg Asn Asp Gln Gly Lys Arg Tyr Tyr
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His Leu Met Lys Phe Leu Thr Glu Asn Val Ser Gly Thr Pro Glu Tyr
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Leu Pro Ser Tyr Arg Pro Gln Asp His Leu Gln Phe Pro Ala Leu Leu
565 570 575

Gly Met Leu Gly Pro Arg Leu Pro Leu Lys Arg Thr Cys Ser Pro Phe
580 585 590

Thr Glu Glu Phe Glu Pro Leu Pro Ser Lys Gln Ala Lys Glu Gly Asp
595 600 605

Leu Gln Arg Val Leu Leu Tyr Val Arg Arg Glu Thr Glu Glu Val Phe
610 615 620

Asp Ala Leu Met Leu Lys Thr Pro Asp Leu Lys Gly Leu Arg Asn Ala
625 630 635 640

Ile Ser Glu Lys Tyr Gly Phe Pro Glu Glu
645 650

<210> 12
<211> 186
<212> DNA
<213> Homo sapiens

<400> 12
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acatta 186

<210> 13
<211> 2333
<212> DNA
<213> Homo sapiens

<400> 13
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cctgtgacat tcttctggac aatgagtcct atcatctctc caccatgcac cttgtgactc 180
cctcctctgc tgacaacaga taaccacctt taactgtaac tttccacagc ctaccccagc 240

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 aagataaaaag tagcggcaca aaggcttttg taaacagagg cgtttcatgt ggttttcctt 2280
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<210> 14
 <211> 121
 <212> PRT
 <213> Homo sapiens

<400> 14

Met Gly Pro Val Pro His Ile Trp Gln Pro Asp Gln His Pro Gly Gln
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His Lys Asp Leu Gln Ser Glu Leu Leu Asn Phe Ser Ile Gln Thr Ala
 20 25 30

Thr His Thr Tyr Gly Lys Arg Val Met Tyr His Arg Leu Ser Asn Arg
 35 40 45

Glu Tyr Tyr Ser Tyr Asp Gly Lys Trp Gly Gln Lys Ala Leu Val His
 50 55 60

Lys Thr Leu Phe Leu Pro Trp Pro Lys Asn Ser Ser Pro Pro Thr Leu
 65 70 75 80

Lys Leu Ile Cys Leu Ile Thr Val Phe Arg Glu Leu Ile Leu Leu Gly
 85 90 95

Gln Phe Gln Ala Gln Lys Tyr Ala Asn Trp His Leu Val Ser Tyr Ile
 100 105 110

Lys Met His Pro Arg Pro Glu Thr Tyr
 115 120

<210> 15
 <211> 2436
 <212> DNA
 <213> Homo sapiens

<400> 15

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 cctgtgacat tcttctggac aatgagtccc atcatctctc caccatgcac cttgtgactc 180
 cctcctctgc tgacaacaga taaccacctt taactgtaac tttccacagc ctaccccagc 240
 cctataaagc tgcccctctc ctatctccct tcgctgactc tcttttcaga ctcagcccac 300
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cggccccctg tcttggccct cattccgtga agagatccac ctgcgacctc gggtcctcag	480
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<210> 16
 <211> 100
 <212> PRT
 <213> Homo sapiens

<400> 16

Cys Cys Pro Ile Ala Ser Glu Ala Pro Trp Thr Ile Thr Asp Ala Glu
 1 5 10 15

Leu Arg Val Thr Leu Thr Val Glu Asp Ser Gln Pro Tyr Glu Asp Thr
 20 25 30

Leu Ala Gly Arg Ser Val Leu Val Lys Ser Leu Thr Pro Gln Thr Leu
 35 40 45

Gln Pro Gln Trp Thr Arg Pro Tyr Pro Val Ile Tyr Ser Thr Pro Thr
 50 55 60

Ala Val His Leu Gln Asp Pro Leu His Trp Val His His Ser Arg Ile
 65 70 75 80

Lys Pro Cys Pro Ser Asp Ser Gln Leu Asp Leu Ser Ser Ser Ser Trp
 85 90 95

Lys Pro Gln Asp
 100

<210> 17
 <211> 517
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)..(517)
 <223> n is a, c, g, or t

<400> 17
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 gcactgtgaa cgccccagcc acaccgtgtc aacaaaccgt gtggcacttg ggagaaggca 180
 ggggtgattt acgantagtc atgtttcgcc tccacccgag tcaactgcaa ggagtggaca 240
 gtgacactga ataagcatnc ggngcacctc cttcgggaag ggacttggct gacatggtag 300
 gccttccac tggagcctgt actttgtctt gctgggcagc actccantca tgggaaggaa 360

caatgancaa ggcgtggtgg tgggggtgng taggcctgag cgccgttttc catggtgacc	420
ttcactgagc aggcagcagg cactgatggg cagttgagnc tggaggagt caggtcctgg	480
tctgcctct ggtgtaacgc agcangccat caaagg	517

<210> 18
 <211> 766
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc_feature
 <222> (1)..(766)
 <223> n is a, c, g, or t

<400> 18 agaattcggc acgagntttt ttttctctta gatctccagg ttcccttctt taccctcgga	60
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cgtttctgta catttcatgc agagcaatta aatagggcac tgcatttttc ttcaagttaa	180
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tgcaccattt tacttttctt gccatatttt caatgtttac tgatgtttct ctgccctttc	660
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<210> 19
 <211> 455
 <212> DNA
 <213> Homo sapiens

<400> 19 ttttgttggc tgaggcggta ttttctttt attgctgtta tgagattcaa cattttttcc	60
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agaaaggctt ttcaaacac acacgtgtgg acagaggctc acacacggat acgtgtgcac	180
acacgggtgc cttgggcgtg cgtcttccaa aaggggcgag tacagctatc aacttgtgac	240
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gtgtacacac acaggcacag gcaccgtgtc ccaaggccat ctccaaggg caccgcaga	360
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455

<210> 20
<211> 1225
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(1225)
<223> n is a, c, g, or t

<400> 20
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gttaagagat tcaacatttt ttcagaaat aacttctgaa aagggggcct nagattttga 180
acacttggga tcctaacagg ggggtgagaaa ggcttttcaa aacacacnac ggggtggacag 240
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ttcattcatc tttagggaca ggaccggtgt gtctgggtgg cagtttagag agctgggaca 1140
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cgaggcattc tnaggggctn tatnc 1225

<210> 21
<211> 308
<212> DNA
<213> Homo sapiens

<400> 21
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cccactaact gagggaaaaa gggtcccagg tggggctctc tgcccacttt gccaccacat	180
tcacattcca aatgggataa tgcctgaggg gccatgagtg gtcaggctgc cctgggggtga	240
atgtcaccct gatgaggccc atcagctctt gtccactcag tgaggccaga cttgtgctct	300
aatccact	308

<210> 22
 <211> 1212
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)..(1212)
 <223> n is a, c, g, or t

<400> 22	
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gtgctgatt caagcgtctg tctgggtcag atataaatac ccatgtgggt acctaggtgc	180
tagtctcccc actaactgag ggaaaaaggt tcccagggtg ggtcctctgc ccactttgcc	240
accacattca cattccaaat gggataatgc ctgaggggcc aagagtggtc aggetgcct	300
ggggtgaatg tcacctgat gaggcccatc agctcttgct cactcagtga ggccagactt	360
gtgctctaata ccactctct gtgggtcctt ggctgtatg gcttatactg gggagctggg	420
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catccttgct ctaagacaaa acttttccca gagaagaact ctttggtgtc cccgctcagc	540
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nttgangntt ggggtgangg aaacaaaaa nggntggaaa aagnaaaaca ctttnnaaa	1020
ccctgggtac cnanataag nttttggccc naaaaantcn gccnncaagg gatccgcccc	1080
nnccccccag ggaaaaantt gggtcctngg gngaaaagga ntttncccc cncaaatttt	1140
nnccnaaaag ntttggaant tgnaaaaanaa aaggancctt ccccccccn ccacaaaaaa	1200
aaaaaaaaaa aa	1212

<210> 23
<211> 1229
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(1229)
<223> n is a, c, g, or t

<400> 23
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ccgctgtacc tgtgcaatgc cagtgatgac gacaatctgg agcctggatt catcagcatc 180
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gaaaacaaac aaccnctgga aggaanccnn naccctntnn ccnaaggct ggggaangna 1140
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gccccnaaa caaagggant tganaaant 1229

<210> 24
<211> 3780
<212> DNA
<213> Homo sapiens

<400> 24
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tagtggaagc agtatgtatg gttgaagtgc attgctgcag ctggtagcat gagtgggtggc	180
caccagctgc agctggctgc cctctggccc tggtctgtga tggtaccct gcaggcaggc	240
tttggaacgca caggactggt actggcagca gcggtggagt ctgaaagatc agcagaacag	300
aaagctgtta tcagagtgat ccccttgaaa atggacccca caggaaaact gaatctcact	360
ttggaagggtg tgtttctgtg tggtctgtaa ataactccag cagaaggaaa attaatgcag	420
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agcatcgtca agctggagag tcctcgacgg gccccccgcc cctgcctgtc actggctagc	540
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<210> 25
 <211> 783
 <212> PRT
 <213> Homo sapiens

<400> 25

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Ala Ala Ala Val Glu Ser Glu Arg Ser Ala Glu Gln Lys Ala Val Ile
35 40 45

Arg Val Ile Pro Leu Lys Met Asp Pro Thr Gly Lys Leu Asn Leu Thr
50 55 60

Leu Glu Gly Val Phe Ala Gly Val Ala Glu Ile Thr Pro Ala Glu Gly
65 70 75 80

Lys Leu Met Gln Ser His Pro Leu Tyr Leu Cys Asn Ala Ser Asp Asp
85 90 95

Asp Asn Leu Glu Pro Gly Phe Ile Ser Ile Val Lys Leu Glu Ser Pro
100 105 110

Arg Arg Ala Pro Arg Pro Cys Leu Ser Leu Ala Ser Lys Ala Arg Met
115 120 125

Ala Gly Glu Arg Gly Ala Ser Ala Val Leu Phe Asp Ile Thr Glu Asp
130 135 140

Arg Ala Ala Ala Glu Gln Leu Gln Gln Pro Leu Gly Leu Thr Trp Pro
145 150 155 160

Val Val Leu Ile Trp Gly Asn Asp Ala Glu Lys Leu Met Glu Phe Val
165 170 175

Tyr Lys Asn Gln Lys Ala His Val Arg Ile Glu Leu Lys Glu Pro Pro
180 185 190

Ala Trp Pro Asp Tyr Asp Val Trp Ile Leu Met Thr Val Val Gly Thr
195 200 205

Ile Phe Val Ile Ile Leu Ala Ser Val Leu Arg Ile Arg Cys Arg Pro
210 215 220

Arg His Ser Arg Pro Asp Pro Leu Gln Gln Arg Thr Ala Trp Ala Ile
225 230 235 240

Ser Gln Leu Ala Thr Arg Arg Tyr Gln Ala Ser Cys Arg Gln Ala Arg
245 250 255

Gly Glu Trp Pro Asp Ser Gly Ser Ser Cys Ser Ser Ala Pro Val Cys
260 265 270

Ala Ile Cys Leu Glu Glu Phe Ser Glu Gly Gln Glu Leu Arg Val Ile
275 280 285

Ser Cys Leu His Glu Phe His Arg Asn Cys Val Asp Pro Trp Leu His
290 295 300

Gln His Arg Thr Cys Pro Leu Cys Val Phe Asn Ile Thr Glu Gly Asp
305 310 315 320

Ser Phe Ser Gln Ser Leu Gly Pro Ser Arg Ser Tyr Gln Glu Pro Gly
325 330 335

Arg Arg Leu His Leu Ile Arg Gln His Pro Gly His Ala His Tyr His
340 345 350

Leu Pro Ala Ala Tyr Leu Leu Gly Pro Ser Arg Ser Ala Val Ala Arg
355 360 365

Pro Pro Arg Pro Gly Pro Phe Leu Pro Ser Gln Glu Pro Gly Met Gly
370 375 380

Pro Arg His His Arg Phe Pro Arg Ala Ala His Pro Arg Ala Pro Gly
385 390 395 400

Glu Gln Gln Arg Leu Ala Gly Ala Gln His Pro Tyr Ala Gln Gly Trp
405 410 415

Gly Met Ser His Leu Gln Ser Thr Ser Gln His Pro Ala Ala Cys Pro
420 425 430

Val Pro Leu Arg Arg Ala Arg Pro Pro Asp Ser Ser Gly Ser Gly Glu
435 440 445

Ser Tyr Cys Thr Glu Arg Ser Gly Tyr Leu Ala Asp Gly Pro Ala Ser
450 455 460

Asp Ser Ser Ser Gly Pro Cys His Gly Ser Ser Ser Asp Ser Val Val
465 470 475 480

Asn Cys Thr Asp Ile Ser Leu Gln Gly Val His Gly Ser Ser Ser Thr
485 490 495

Phe Cys Ser Ser Leu Ser Ser Asp Phe Asp Pro Leu Val Tyr Cys Ser
500 505 510

Pro Lys Gly Asp Pro Gln Arg Val Asp Met Gln Pro Ser Val Thr Ser
515 520 525

Arg Pro Arg Ser Leu Asp Ser Val Val Pro Thr Gly Glu Thr Gln Val
530 535 540

Ser Ser His Val His Tyr His Arg His Arg His His His Tyr Lys Lys
545 550 555 560

Arg Phe Gln Trp His Gly Arg Lys Pro Gly Pro Glu Thr Gly Val Pro
565 570 575

Gln Ser Arg Pro Pro Ile Pro Arg Thr Gln Pro Gln Pro Glu Pro Pro
580 585 590

Ser Pro Asp Gln Gln Val Thr Gly Ser Asn Ser Ala Ala Pro Ser Gly
595 600 605

Arg Leu Ser Asn Pro Gln Cys Pro Arg Ala Leu Pro Glu Pro Ala Pro
610 615 620

Gly Pro Val Asp Ala Ser Ser Ile Cys Pro Ser Thr Ser Ser Leu Phe
625 630 635 640

Asn Leu Gln Lys Ser Ser Leu Ser Ala Arg His Pro Gln Arg Lys Arg
645 650 655

Arg Gly Gly Pro Ser Glu Pro Thr Pro Gly Ser Arg Pro Gln Asp Ala
660 665 670

Thr Val His Pro Ala Cys Gln Ile Phe Pro His Tyr Thr Pro Ser Val
675 680 685

Ala Tyr Pro Trp Ser Pro Glu Ala His Pro Leu Ile Cys Gly Pro Pro
690 695 700

Gly Leu Asp Lys Arg Leu Leu Pro Glu Thr Pro Gly Pro Cys Tyr Ser
705 710 715 720

Asn Ser Gln Pro Val Trp Leu Cys Leu Thr Pro Arg Gln Pro Leu Glu
725 730 735

Pro His Pro Pro Gly Glu Gly Pro Ser Glu Trp Ser Ser Asp Thr Ala
740 745 750

Glu Gly Arg Pro Cys Pro Tyr Pro His Cys Gln Val Leu Ser Ala Gln
755 760 765

Pro Gly Ser Glu Glu Glu Leu Glu Glu Leu Cys Glu Gln Ala Val
 770 775 780

<210> 26
 <211> 422
 <212> DNA
 <213> Homo sapiens

<400> 26
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 aggaatagat atgaaacaat cttggagtaa aaattagaag gcaacttgct tcaagtttgt 120
 accaagtcaa tcaagcagaa acctgaagaa ccttgtttta agatgagagt catttatact 180
 tggcaggcat tttcttccaa tgaaaaaata aagtcaatgt gccattatct tgacacttat 240
 aaaaatgttt ataaaaagca tttaggccat tgattctcac agttggctga atattggaat 300
 cacctagatt aaaaaaata ctaatcccta tacaacatcc ccaaaattca gatttaatta 360
 gtgtaagtta ggccctgggc atataggctg ttttaaaatt cctcgggtga gtctaattgtg 420
 ta 422

<210> 27
 <211> 1219
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)..(1219)
 <223> n is a, c, g, or t

<400> 27
 ccenncnccc nnnnnngnnn nnccttanctc gcagncanaa ttcggccacg cagggtcgcc 60
 ttgcgcgcca tggnacgcca cggggcgctg acagacctat ggagagtcag ggtgtgctc 120
 ccgggcctta tcgggcccacc aagctgtgga atgaagttac cacatctttt cgagcaggaa 180
 tgcttctaag aaaacacaga caacacttta aaaaatatgg caattgtttc acagcaggag 240
 aagcagtgga ttggctttat gacctattaa gaaataatag caattttggt cctgaagtta 300
 caaggcaaca gactatccaa ctggtgagga aatttcttaa gaatcatgta attgaagata 360
 tcaaagggag gtggggatca gaaaatgttg atgataacaa ccagctcttc agatttctg 420
 caacttcgcc acttaaaact ctaccacgaa ggtatccaga attgagaaaa aacaacatag 480
 agaacttttc caaagataaa gatagcattt ttaaattacg aaacttatct cgtagaactc 540
 ctaaaaggca tggattacat ttatctcagg aaaatggcga gaaaataaag catgaaataa 600
 tcaatgaaag atcaagaaaa tgcaattgat aatagagaac taagccagga agatgttgaa 660
 agaagnttgg gagatatgtt attctgatcc tacctgcaaa ccattttaag gtgtgcccac 720
 cccctagaag naagttctta aatcccaaac caggtaattc cccaantan ttaatgnaca 780

aacatgggcc aatacaagtt aancnngga gtagttntta ctacaaaacc aattcngatg	840
accttcccc acnggntntt tnnctngcca tggaaangnc cctaccaa an tggcccaana	900
anncantgat ttggaataat ccnncctttg gttgggattn nancaaattg antccnaann	960
atccccaaat antttncnaa annctcctg ancccnacct anctttggaa nttncccaat	1020
tntttggcaa acnttttggg ganggaaaga attctccgga tttnagccct tntggcaaag	1080
gntncacctn nnttnaattt naagannnac accctnggna aatntaangg ggccccnna	1140
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ggattcctna ccccccan	1219

<210> 28
 <211> 1226
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)..(1226)
 <223> n is a, c, g, or t

<400> 28 cnnnnnantg cggccgctca tttttttttt ttttttttct ctatgnaagc agactgnagn	60
aagaaggcac tcagnttgat ttgaaggaat tcaaattggt taagtgaagg aattttgaag	120
actgtggatc atcttgaatt ttatgtatcc cactggatct atctgaaact gtgatgtagc	180
cacaaacaac taccaggaaa tgaaacaaaa attaagatgc aactgtatga cagtggacaa	240
aaataaaaca aaaacaatag taaagttaaa aaataaagca ttactatagt atatattggt	300
agtatagtat acacagtagt tgcttaattc agaagccact taaataggac acatgcaaca	360
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aattatttca acagccta at taaatggatt gagccagaat acatttaaaa aatctgttct	480
cagtctgcaa gtactagaaa cctcataaat ataagataat tgtggtataa taaaatacat	540
atatttgatc tttgtccttg gtacctggtg tggagctcct aaaatccttg aaatttcttg	600
aatgatagaa gtcttttagtt actcataaca agcctatttc agcgttatcc tgagtttcat	660
gcctaanggt aactganggc cnggccatgg gtttgaattt tcatccacca actacaaccc	720
ttgtggggag gagaaaggn ctagaaattn aagttenntt gnccaccag tgacccaatg	780
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naggctgang ggagttttnt agggtnnngg aanccttgn tggggctggg natccccgga	900
ttgaccaga aanggtaaaa aaaacncttn gcccccccc cccccctna cccggggnet	960
tgggaaaccc ctcccttttg cnttttntct gaggnnacc cttttnaaat aaactaaaag	1020
ccatagntaa aggggcnttt tncntnttnc tgggaanctt gnanggaatt tttngaccn	1080

ggnaaggggn tttgaggga ancccaantn ggtaattggc ngggcgggaa tttnnatacc 1140
 ccngaaccc nattncncgg aattaaaaaa atttnggnnc ggnccccctt ntntnnncca 1200
 ggggtnaaan ttctcnaaan nanaaa 1226

<210> 29
 <211> 1119
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)..(1119)
 <223> n is a, c, g, or t

<400> 29
 agctcgnagc cagattcggc acgagggaga ttatatgttt tatttatcat tgtctctgca 60
 tatctggaac aacgaaaggc acatagcagt tgctaaataa atatcttttg aatgaatata 120
 tgattgcctt atacttcttt tatatcccca tcttctaata gattatgaaa actagaattc 180
 aaaatatata tactgaacaa atgaatgact gaagcaattg gggataatat ttaaggcaaa 240
 accaaatctg ataaaatata cacatatattt aaaaacacat acatatatat aaatagatca 300
 aaagtggaaa aagaatatat aaaagagtgc aacatttggc agctgagaat tatttcattg 360
 agttttcaaa tattcttcac attcttatac ttagaaacaa agaagtaacc ccaaacaact 420
 aattcattag ctaatatctc agaacttgca catttgacaga taaattttct ttaagaaca 480
 gaattatagt ttaatcccta acacagctca gttttcaaaa ttcaagtaaa taaaatttta 540
 gcacacatca tgatagcctt actggnatag ctgtgttaaa aacaaaaagt atttggatc 600
 atctattgtt atgtgctctc aattgagatc tagttagttt cctaagagtc tcacattgat 660
 anctattttg ggcacttctt tacataatgn gnttatattg aaatacctta ttaatgacag 720
 acttcccttt gagtagctac attctcagat atggctncat ttatcaaagt tcccnagga 780
 ttacctaatt ttaattccag ttagntatct aaactacgga actttnggnt ttccttaaan 840
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 cgggggtggn aantcttttc ntgaanntnc caaggnaaat tccctcnga aannggntt 960
 taantttttt nccntttccc ccttnaangg gaaacccccg ggttttnaaa aaaatttttc 1020
 ccaaaanatt cnnccnatgg gcccttttgg aaaggnaaaa anttttttgt cccttaaaaa 1080
 nccctggnaa ccnaatttgg ttnancaa at anaggaagg 1119

<210> 30
 <211> 1058
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)..(1058)

<223> n is a, c, g, or t

<400> 30
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 ctatggagag tcaggggtgt cctcccgggc cttatcgggc caccaagctg tggaatgaag 120
 ttaccacatc ttttcgagca ggaatgcctc taagaaaaca cagacaacac tttaaaaaat 180
 atggcaattg tttcacagca ggagaagcag tggattggct ttatgaccta ttaagaaata 240
 atagcaattt tggctcctgaa gttacaaggc aacagactat ccaactgttg aggaaatttc 300
 ttaagaatca tgtaattgaa gatatcaaag ggaggtgggg atcagaaaat gttgatgata 360
 acaaccagct cttcagattt cctgcaactt cgccacttaa aactctacca cgaaggatc 420
 cagaattgag aaaaaacaac atagagaact tttccaaaga taaagatagc atttttaaat 480
 tacgaaaactt atctcgtaga actcctaaaa ggcattggatt acatttatct caggaaaatg 540
 gcgagaaaat aaagcatgaa ataataatg aagatcaaga aaatgcaatt gataatagag 600
 aactaagcca ggaagatgtt gaagaagttt gggagatatg ttattctgat ctacctgcaa 660
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 tatataatgt acnacatggc caatacangt aacgtgggag tagttatact acaaacaat 780
 cagatgacct ccctcactgg gtattatctg ccatgaagng cctagcaaat nggccagaag 840
 catgatatgn aataatccac ctttgnngga tttgaccgan atgtnttnga acatcccgat 900
 tattttctaaa cccctgaccn ctnttacttt gaaatnanaa ttattgnaan ctttggngtg 960
 ctncnccctt taaaggggtg cncceaagcc tnngttngtg ntgttactnc ccccaancga 1020
 aaagnncnct ttatgggtgn tncccaagaa caatntnn 1058

<210> 31
 <211> 2396
 <212> DNA
 <213> Homo sapiens

<400> 31
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 cgccaccggg cgctgacaga cctatggaga gtcaggggtg gcctcccggg cttatcggg 120
 ccaccaagct tggaatgaa gttaccacat ttttcgagc aggaatgcct ctaagaaaac 180
 acagacaaca ctttaaaaaa tatggcaatt gtttcacagc aggagaagca gtggattggc 240
 tttatgacct attaagaaat aatagcaatt ttggctcctga agttacaagg caacagacta 300
 tccaactgtt gaggaaattt cttagaatc atgtaattga agatatcaa gggaggtggg 360
 gatcagaaaa tgttgatgat aacaaccagc tcttcagatt tcctgcaact tcgccactta 420
 aaactctacc acgaaggat ccagaattga gaaaaaaca catagagaac ttttccaaag 480
 ataaagatag catttttaaa ttacgaaact tatctcgtag aactcctaaa aggcattgat 540

tacattttatc tcaggaaaat ggcgagaaaa taaagcatga aataatcaat gaagatcaag	600
aaaatgcaat tgataataga gaactaagcc aggaagatgt tgaagaagtt. tggagatatg	660
ttattctgat ctacctgcaa accatttttag gtgtgccatc cctagaagaa gtcataaatc	720
caaaacaagt aattccccaat tatataatgt acaacatggc caatacaagt aaacgtggag	780
tagttatact acaaaacaaa tcagatgacc tccctcactg ggtattatct gccatgaagt	840
gcctagcaaa ttggccaaga agcaatgata tgaatgatcc aacttatgtt ggatttgaac	900
gagatgtatt cagaacaatc gcagattatt ttctagatct ccctgaacct ctacttactt	960
ttgaatatta cgaattatct gtaaacatct tgggtgtttg tggctacatc acagtttcag	1020
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taaacaattt gaattccttc aaatcaactg agtgccttct tctcagtctg cttcatagag	1140
aaaaaaaaaa agaagaatca gattctactg agagactaca gataagcaat ccaggatttc	1200
aagaaagatg tgctaagaaa atgcagctag ttaatttaag aaacagaaga gtgagtgtca	1260
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cctctaacag caaaccaagg tgctgttctt tgggaaggaat tgtagatgtg ccagggaatt	1380
caagtaaaga ggcattcagt gtctttcatc aatcttttcc gaacatagaa ggacaaaata	1440
ataaactgtt ttagagtct aagcccaaac aggaattcct gttgaatctt cattcagagg	1500
aaaatattca aaagccattc agtgctggtt ttaagagaac ctctactttg actgttcaag	1560
accaagagga gttgtgtaat gggaaatgca agtcaaaaaca gctttgtagg tctcagagtt	1620
tgcttttaag aagtagtaca agaaggaata gttatatcaa tacaccagtg gctgaaatta	1680
tcatgaaacc aaatgttgga caaggcagca caagtgtgca aacagctatg gaaagtgaac	1740
tcggagagtc tagtgccaca atcaataaaa gactctgcaa aagtacaata gaactttcag	1800
aaaattcttt acttcagct tcttctatgt tgactggcac acaaagcttg ctgcaacctc	1860
atttagagag ggttgccatc gatgctctac agttatgttg tttgttactt cccccaccaa	1920
atcgtagaaa gcttcaactt ttaatgcgta tgatttcccg aatgagtcaa aatgttgata	1980
tgcccaaaact tcatgatgca atgggtacga ggtcactgat gatacatacc ttttctcgat	2040
gtgtgttatg ctgtgctgaa gaagtggatc ttgatgagct tcttgctgga agattagttt	2100
ctttcttaat ggatcatcat caggaaattc ttcaagtacc ctcttactta ctagaactgct	2160
agtggataat aacatcttga ctacttaaaa aagggaacata ttgaaaatcc tggagatgga	2220
ctatttgctc ctttgccataa cttactcata ctgtaagcag attagtgtc aggagtttga	2280
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aaaatacagg agtttacctt aaaggaaaaa aaaaaaacia aaaaaaaaaa aaaaaa	2396

<210> 32
 <211> 692
 <212> PRT
 <213> Homo sapiens

<400> 32

Met Glu Ser Gln Gly Val Pro Pro Gly Pro Tyr Arg Ala Thr Lys Leu
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Trp Asn Glu Val Thr Thr Ser Phe Arg Ala Gly Met Pro Leu Arg Lys
 20 25 30

His Arg Gln His Phe Lys Lys Tyr Gly Asn Cys Phe Thr Ala Gly Glu
 35 40 45

Ala Val Asp Trp Leu Tyr Asp Leu Leu Arg Asn Asn Ser Asn Phe Gly
 50 55 60

Pro Glu Val Thr Arg Gln Gln Thr Ile Gln Leu Leu Arg Lys Phe Leu
 65 70 75 80

Lys Asn His Val Ile Glu Asp Ile Lys Gly Arg Trp Gly Ser Glu Asn
 85 90 95

Val Asp Asp Asn Asn Gln Leu Phe Arg Phe Pro Ala Thr Ser Pro Leu
 100 105 110

Lys Thr Leu Pro Arg Arg Tyr Pro Glu Leu Arg Lys Asn Asn Ile Glu
 115 120 125

Asn Phe Ser Lys Asp Lys Asp Ser Ile Phe Lys Leu Arg Asn Leu Ser
 130 135 140

Arg Arg Thr Pro Lys Arg His Gly Leu His Leu Ser Gln Glu Asn Gly
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Atty. Docket No. 037003-0312028

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Atty. Docket No. 037003-0312028

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<400> 45

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Leu Asp Val Leu Gly Gly Val Leu Ile Thr Ala Leu Leu Ile Val Leu
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Thr Tyr Pro Ala Trp Thr Phe Ile Asp Cys Leu Asp Ser Ala Ser Pro
65 70 75 80

Leu Phe Pro Val Cys Val Ile Val Val Pro Phe Phe Leu Cys Tyr Asn
85 90 95

Tyr Pro Val Ser Asp Tyr Tyr Ser Pro Thr Arg Ala Asp Thr Thr Thr
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Ile Leu Ala Ala Gly Ala Gly Val Thr Ile Gly Phe Trp Ile Asn His
115 120 125

Phe Phe Gln Leu Val Ser Lys Pro Ala Glu Ser Leu Pro Val Ile Gln
 130 135 140

Asn Ile Pro Pro Leu Thr Thr Tyr Met Leu Val Leu Gly Leu Thr Lys
 145 150 155 160

Phe Ala Val Gly Ile Val Leu Ile Leu Leu Val Arg Gln Leu Val Gln
 165 170 175

Asn Leu Ser Leu Gln Val Leu Tyr Ser Trp Phe Lys Val Val Thr Arg
 180 185 190

Asn Lys Glu Ala Arg Arg Arg Leu Glu Ile Glu Val Pro Tyr Lys Phe
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Leu His Arg Phe Leu Gly Leu Pro
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 <223> n is a, c, g, or t

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<212> PRT
<213> Homo sapiens

<400> 50

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35 40 45

Pro Tyr Gly Thr Arg Asn Ala Val Leu Asn Thr Glu Ala Arg Thr Met
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Ala Ala Glu Val Leu Ser Arg Arg Cys Val Leu Met Arg Leu Leu Asp
65 70 75 80

Phe Ser Tyr Glu Gln Tyr Gln Lys Ala Leu Arg Gln Ser Ala Gly Ala
85 90 95

Val Val Ile Ile Leu Pro Arg Ala Met Ala Ala Val Pro Gln Asp Val
100 105 110

Val Arg Gln Phe Met Glu Ile Glu Pro Glu Met Leu Ala Met Glu Thr
115 120 125

Ala Val Pro Val Tyr Phe Ala Val Glu Asp Glu Ala Leu Leu Ser Ile
130 135 140

Tyr Lys Gln Thr Gln Ala Ala Ser Ala Ser Gln Gly Ser Ala Ser Ala
145 150 155 160

Ala Glu Val Leu Leu Arg Thr Ala Thr Ala Asn Gly Phe Gln Met Val
165 170 175

Thr Ser Gly Val Gln Ser Lys Ala Val Ser Asp Trp Leu Ile Ala Ser
180 185 190

Val Glu Gly Arg Leu Thr Gly Leu Gly Gly Glu Asp Leu Pro Thr Ile
195 200 205

Val Ile Val Ala His Tyr Asp Ala Phe Gly Val Ala Pro Trp Leu Ser
210 215 220

Leu Gly Ala Asp Ser Asn Gly Ser Gly Val Ser Val Leu Leu Glu Leu
225 230 235 240

Ala Arg Leu Phe Ser Arg Leu Tyr Thr Tyr Lys Arg Thr His Ala Ala
245 250 255

Tyr Asn Leu Leu Phe Phe Ala Ser Gly Gly Gly Lys Phe Asn Tyr Gln
260 265 270

Gly Thr Lys Arg Trp Leu Glu Asp Asn Leu Asp His Thr Asp Ser Ser
275 280 285

Leu Leu Gln Asp Asn Val Ala Phe Val Leu Cys Leu Asp Thr Val Gly
290 295 300

Arg Gly Ser Ser Leu His Leu His Val Ser Lys Pro Pro Arg Glu Gly
305 310 315 320

Thr Leu Gln His Ala Phe Leu Arg Glu Leu Glu Thr Val Ala Ala His
325 330 335

Gln Phe Pro Glu Val Arg Phe Ser Met Val His Lys Arg Ile Asn Leu
340 345 350

Ala Glu Asp Val Leu Ala Trp Glu His Glu Arg Phe Ala Ile Arg Arg
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Leu Pro Ala Phe Thr Leu Ser His Leu Glu Ser His Arg Asp Gly Gln
370 375 380

Arg Ser Ser Ile Met Asp Val Arg Ser Arg Val Asp Ser Lys Thr Leu
385 390 395 400

Thr Arg Asn Thr Arg Ile Ile Ala Glu Ala Leu Thr Arg Val Ile Tyr
405 410 415

Asn Leu Thr Glu Lys Gly Thr Pro Pro Asp Met Pro Val Phe Thr Glu
420 425 430

Gln Met Gln Ile Gln Gln Glu Gln Leu Asp Ser Val Met Asp Trp Leu
435 440 445

Thr Asn Gln Pro Arg Ala Ala Gln Leu Val Asp Lys Asp Ser Thr Phe
450 455 460

Leu Ser Thr Leu Glu His His Leu Ser Arg Tyr Leu Lys Asp Val Lys
465 470 475 480

Gln His His Val Lys Ala Asp Lys Arg Asp Pro Glu Phe Val Phe Tyr
485 490 495

Asp Gln Leu Lys Gln Val Met Asn Ala Tyr Arg Val Lys Pro Ala Val
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Phe Asp Leu Leu Leu Ala Val Gly Ile Ala Ala Tyr Leu Gly Met Ala
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<400> 53

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Thr Ala Leu Ala Thr Phe Ile Val Ile Leu Pro Gly Ile Arg Gly Lys
 35 40 45

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Atty. Docket No. 037003-0312028

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Tyr Asn Glu Glu Phe Thr Trp Arg Leu Gly Glu Asn Tyr Ala Glu Glu
85 90 95

Tyr Ala Lys Ala Leu Glu Lys Gly Leu Pro Asp Pro Val Leu Tyr Leu
100 105 110

Ala Glu Lys Phe Thr Pro Arg Ser Pro Cys Gly Leu Tyr Arg Gln Tyr
115 120 125

Arg Leu Ala Gly His Tyr Thr Ser Ala Met Leu Trp Val Ala Phe Leu
130 135 140

Cys Trp Leu Leu Ala Asn Val Met Leu Ser Met Pro Val Leu Val Tyr
145 150 155 160

Gly Gly Tyr Met Leu Leu Ala Thr Gly Ile Phe Gln Leu Leu Ala Leu
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Leu Phe Phe Ser Met Ala Thr Ser Leu Thr Ser Pro Cys Pro Leu His
180 185 190

Leu Gly Ala Ser Val Leu His Thr His His Gly Pro Ala Phe Trp Ile
195 200 205

Thr Leu Thr Thr Gly Leu Leu Cys Val Leu Leu Gly Leu Ala Met Ala
210 215 220

Val Ala His Arg Met Gln Pro His Arg Leu Lys Ala Phe Phe Asn Gln
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Ala Ala Gly Phe Ser Val Pro Leu Leu Ile Val Ile Leu Val Phe Leu
20 25 30
Ala Leu Ala Ala Ser Phe Leu Leu Ile Leu Pro Gly Ile Arg Gly His
35 40 45
Ser Arg Trp Phe Trp Leu Val Arg Val Leu Leu Ser Leu Phe Ile Gly
50 55 60

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Ala Glu Ile Val Ala Val His Phe Ser Ala Glu Trp Phe Val Gly Thr
65 70 75 80

Val Asn Thr Asn Thr Ser Tyr Lys Ala Phe Ser Ala Ala Arg Val Thr
85 90 95

Ala Arg Val Arg Leu Leu Val Gly Leu Glu Gly Ile Asn Ile Thr Leu
100 105 110

Thr Gly Thr Pro Val His Gln Leu Asn Glu Thr Ile Asp Tyr Asn Glu
115 120 125

Gln Phe Thr Trp Arg Leu Lys Glu Asn Tyr Ala Ala Glu Tyr Ala Asn
130 135 140

Ala Leu Glu Lys Gly Leu Pro Asp Pro Val Leu Tyr Leu Ala Glu Lys
145 150 155 160

Phe Thr Pro Ser Ser Pro Cys Gly Leu Tyr His Gln Tyr His Leu Ala
165 170 175

Gly His Tyr Ala Ser Ala Thr Leu Trp Val Ala Phe Cys Phe Trp Leu
180 185 190

Leu Ser Asn Val Leu Leu Ser Thr Pro Ala Pro Leu Tyr Gly Gly Leu
195 200 205

Ala Leu Leu Thr Thr Gly Ala Phe Ala Leu Phe Gly Val Phe Ala Leu
210 215 220

Ala Ser Ile Ser Ser Val Pro Leu Cys Pro Leu Arg Leu Gly Ser Ser
225 230 235 240

Ala Leu Thr Thr Gln Tyr Gly Ala Ala Phe Trp Val Thr Leu Ala Thr
245 250 255

Gly Glu Asp Arg Glu Asn Gly Pro Arg Gly Leu Arg Val Glu Thr Gly
260 265 270

Phe Thr Pro Gly Val Leu Cys Leu Phe Leu Gly Gly Ala Val Ala Gly
275 280 285

Lys Gln Cys Pro Pro Gly Leu Gly Gln Glu Ser Ser Arg Lys Gly Thr
290 295 300

Glu Arg Cys Trp Arg Glu Ala Ser Asp Ile Arg Arg His Gln Gly Lys
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Ser Pro Gly Ala Ile Cys Lys
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 <213> Homo sapiens

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 cccccagtga ccttgattca ccaacatcca gcctgcgtcg cagcccatca ttgcaatcaa 180
 gtggagacag agtcggtggg agacgtgact tatccagccc acagggactg ctacctggga 240
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 gctaccgccc tgacctgtct cttgccagga ctgtggagcg gataggggga gtaggagtag 360
 agaaggggaac aaggggagcaa gggaacaagg gacatctgaa catct 405

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 <212> DNA
 <213> Homo sapiens

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 actctacatg gggacgaaca cctgtcatgg ttctgcagcc ctgcagcagg ctcccttcacc 180
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 gaatccaggc tcagactgct ggggaactat tctttgtggt tggagggatc caaagaggaa 300
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Ala Asp Asn Met Gln Ala Ile Tyr Val Ala Leu Gly Glu Ala Val Glu
 20 25 30

Leu Pro Cys Pro Ser Pro Pro Thr Leu His Gly Asp Glu His Leu Ser
 35 40 45

Trp Phe Cys Ser Pro Ala Ala Gly Ser Phe Thr Thr Leu Val Ala Gln
 50 55 60

Val Gln Val Gly Arg Pro Ala Pro Asp Pro Gly Lys Pro Gly Arg Glu
 65 70 75 80

Ser Arg Leu Arg Leu Leu Gly Asn Tyr Ser Leu Trp Leu Glu Gly Ser
 85 90 95

Lys Glu Glu Asp Ala Gly Arg Tyr Trp Cys Ala Val Leu Gly Gln His
 100 105 110

His Asn Tyr Gln Asn Trp Arg Val Tyr Asp Val Leu Val Leu Lys Gly
 115 120 125

Ser Gln Leu Ser Ala Arg Ala Ala Asp Gly Ser Pro Cys Asn Val Leu
 130 135 140

Leu Cys Ser Val Val Pro Ser Arg Arg Met Asp Ser Val Thr Trp Gln
 145 150 155 160

Glu Gly Lys Gly Pro Val Arg Gly Arg Val Gln Ser Phe Trp Gly Ser
 165 170 175

Glu Ala Ala Leu Leu Leu Val Cys Pro Gly Glu Gly Leu Ser Glu Pro
180 185 190

Arg Ser Arg Arg Pro Arg Ile Ile Arg Cys Leu Met Thr His Asn Lys
195 200 205

Gly Val Ser Phe Ser Leu Ala Ala Ser Ile Asp Ala Ser Pro Ala Leu
210 215 220

Cys Ala Pro Ser Thr Gly Trp Asp Met Pro Trp Ile Leu Met Leu Leu
225 230 235 240

Leu Thr Met Gly Gln Gly Val Val Ile Leu Ala Leu Ser Ile Val Leu
245 250 255

Trp Arg Gln Arg Val Arg Gly Ala Pro Gly Arg Gly Asn Arg Met Arg
260 265 270

Cys Tyr Asn Cys Gly Gly Ser Pro Ser Ser Ser Cys Lys Glu Ala Val
275 280 285

Thr Thr Cys Gly Glu Gly Arg Pro Gln Pro Gly Leu Glu Gln Ile Lys
290 295 300

Leu Pro Gly Asn Pro Pro Val Thr Leu Ile His Gln His Pro Ala Cys
305 310 315 320

Val Ala Ala His His Cys Asn Gln Val Glu Thr Glu Ser Val Gly Asp
325 330 335

Val Thr Tyr Pro Ala His Arg Asp Cys Tyr Leu Gly Asp Leu Cys Asn
340 345 350

Ser Ala Val Ala Ser His Val Ala Pro Ala Gly Ile Leu Ala Ala Ala
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Ala Thr Ala Leu Thr Cys Leu Leu Pro Gly Leu Trp Ser Gly
370 375 380

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<220>
<223> PCR primer

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<210> 60
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<400> 63
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<220>
<223> PCR primer

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<400> 65

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23

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<211> 6

<212> DNA

<213> Artificial

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<223> polyadenylation site

<400> 66

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6

<210> 67

<211> 21

<212> DNA

<213> Artificial

<220>

<223> PCR primer

<400> 67

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21